The CERN Library

Any advanced research centre needs a good Library. It can be regarded as a piece of equipment as vital as any machine. At the present time, the CERN Library is undergoing a number of modifications to adjust it to the changing scale of CERN's activities and to the ever increasing flood of information. This article, by A.G. Hester, former Editor of CERN COURIER who now works in the Scientific Information Service, describes the purposes, methods and future of the CERN Library.

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The CERN Library is part of the Scientific Information Service (SIS), under Dr. A. Günther, which in turn is part of the Data Handling Division. The other sections of the Service are concerned with document reproduction and publications exchange, the latter being closely connected with the Library. Often in what follows, the term 'Library' should really be replaced by 'Scientific Information Service', but the distinction is not usually noticeable to the Library user.

The purpose of the Library is to provide anyone at CERN — staff member and visitor alike — with all the documentation necessary for his work. The most intensive use of the service is, of course, made in the fields of major interest, notably high-energy physics (theoretical and experimental) and accelerator technology. Here the Library aim is clear: to collect everything available. In more marginal fields (for example medium- and low-energy nuclear physics, electronics, computers, etc.), the proportion of literature actually collected is smaller, depending on the subject, and in some areas the emphasis is more on bibliographies, abstract bulletins and the like, from which the existence of publications in a particular field can be ascertained. In administrative, and similar 'support' fields, hardly anything is collected without an individual request from the person interested.

From this it is clear that, although the number of different subjects to be found in the catalogue is very large, the Library does not aim at a comprehensive collection of literature in all possible fields of interest. Instead, the work involved in obtaining, registering and indexing any document is considered to be justified only if there is a reasonable chance that it will be of direct use for someone's work.

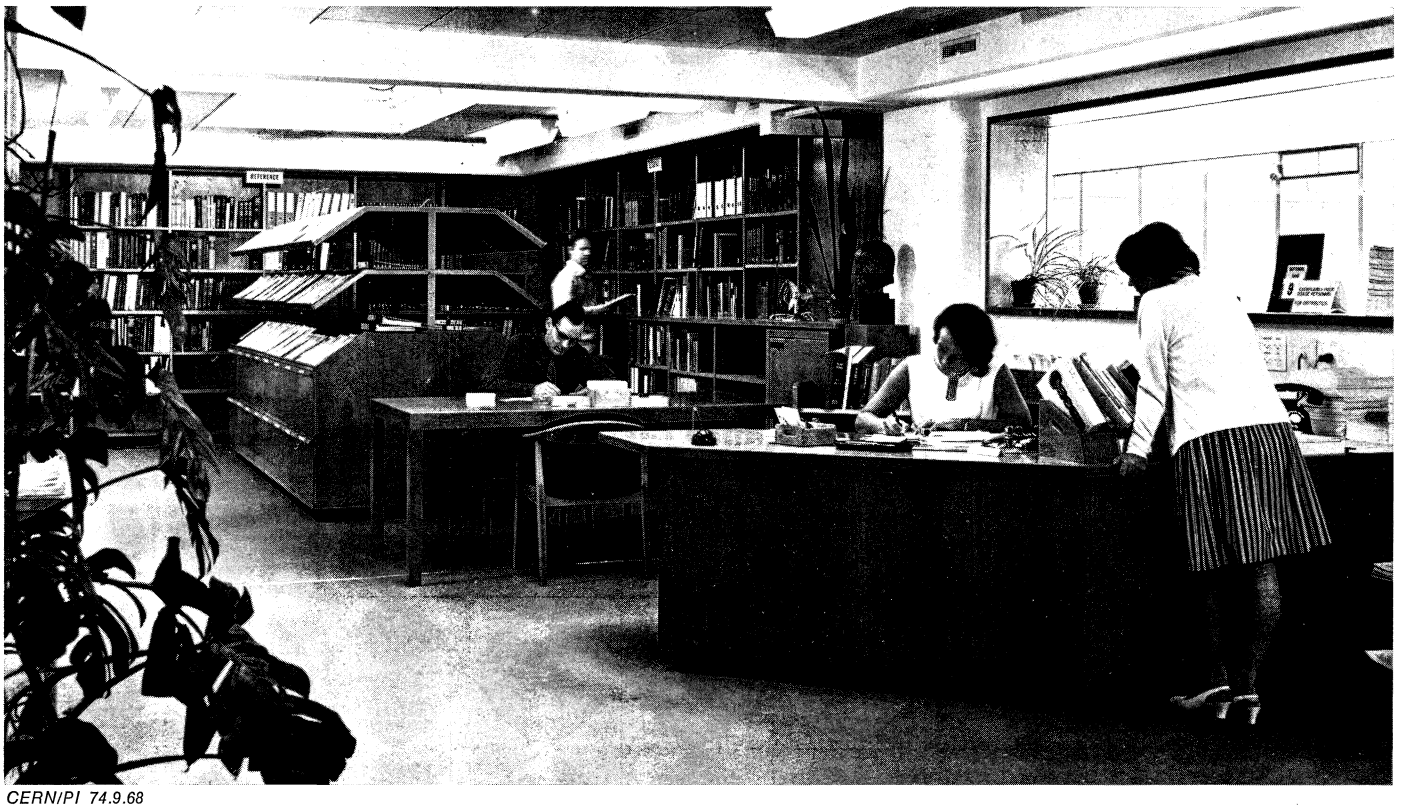
Following the same line of reasoning, anything especially asked for by someone is considered to be worth cataloguing so that it becomes potentially available to all. Any book, periodical, or other document that needs to be purchased by CERN must therefore be ordered through the Library, and becomes part of the Library stock, even if on long-term loan to a particular user.

Overall Library policy, and particularly subscriptions to periodicals, is in the hands of a Library Committee, appointed by the Director General, on which all Departments of CERN, as well as the Library, are represented. The present chairman of this Committee, which normally meets several times a year, is Dr. L. Kowarski.

Library holdings and services

Most people associate libraries with books, and the CERN Library contains rather more than 20 000. However, in a scientific library, other types of material have an equal or greater importance.

Thus over 500 different periodicals are received regularly, mostly on subscription though some come as a result of exchange agreements for CERN publications and others (essentially industrial 'House Journals') as gifts. For the more important periodicals one copy of each issue is not enough, and a total of 160 duplicate sets are therefore taken in addition.



The reading room of the Central Library showing the desk, with some of the reference collection and the preprint racks behind.

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Two photographs taken in the PS Library, the 'satellite library' located in the Proton Synchrotron Division building. On the left, the racks of periodicals ; on the right, the book collection and card catalogue drawers.

Another important part of the Library collection consists of scientific and technical reports issued by numerous laboratories and organizations throughout the world. Last year some 800 such reports were catalogued. Then there are progress reports, annual reports, etc, from various institutions, a varied collection of pamphlets, brochures, reprints and similar material, and special collections of CERN reports and certain high-energy physics and accelerator conference proceedings. Of particular importance is the steady input of 'preprints' and other unpublished material requiring quick notification to the CERN physicists, who rely on this kind of material to keep up to date with the latest results in their field.

There is also an extensive collection of reports in the form of 'microfiches', photographic negatives 148 × 105 mm², each recording up to 72 printed pages. New microfiches are received regularly, through the U.S. Atomic Energy Commission, and many of the reports not otherwise collected by CERN are available in this form. They can be read using a high-quality reader in the Central Library or a portable reader which can be borrowed at the same time as the microfiche.

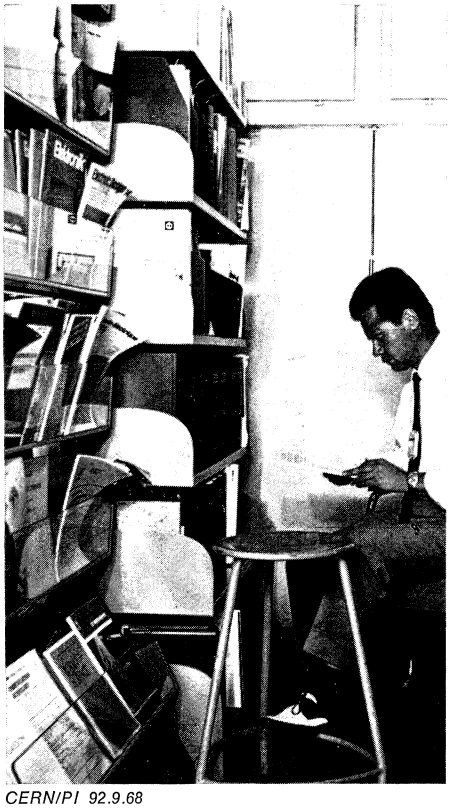
The Library staff are available to help readers find information or particular publications. So far as resources allow, they can also help with the compilation of bibliographies on special subjects or on the publications of particular authors. If a wanted publication is not in the collection, it can often be quickly obtained on loan from another library, since CERN is affiliated with an efficient inter-library loan system. Reports issued by institutions with which CERN has publications exchange agreements can in most cases be obtained on request, if they are not already in the Library, and of course many reports, but more especially books, are purchased to satisfy particular requests from readers.

Most items in the library are available for loan. The principal exceptions are abstract bulletins and bibliographies, which, together with a selection (mostly duplicate copies) of important periodicals, major text books, conference proceedings, handbooks, tables, dictionaries, etc., form the Reference collection. The most recent issue of any periodical is also not allowed out of the Library. There are other books which are hardly ever in the Library, although fully catalogued and available to anyone when required. These, on long-term loan to certain readers, may be on special subjects, of interest only to small groups of people (Customs regulations, medical handbooks, books on education...) or extra copies of certain books needed very often in day-to-day work (the typical example here being the many French-English dictionaries in offices all over CERN).

Bibliographical lists

Documents are not just collected and catalogued; their availability has to be made known to users. This notification is by means of various lists issued by the Scientific Information Service, some directly concerning the library holdings, others of more general interest:

Select accessions — issued fortnightly; lists new books, reports and pamphlets received in the Library.



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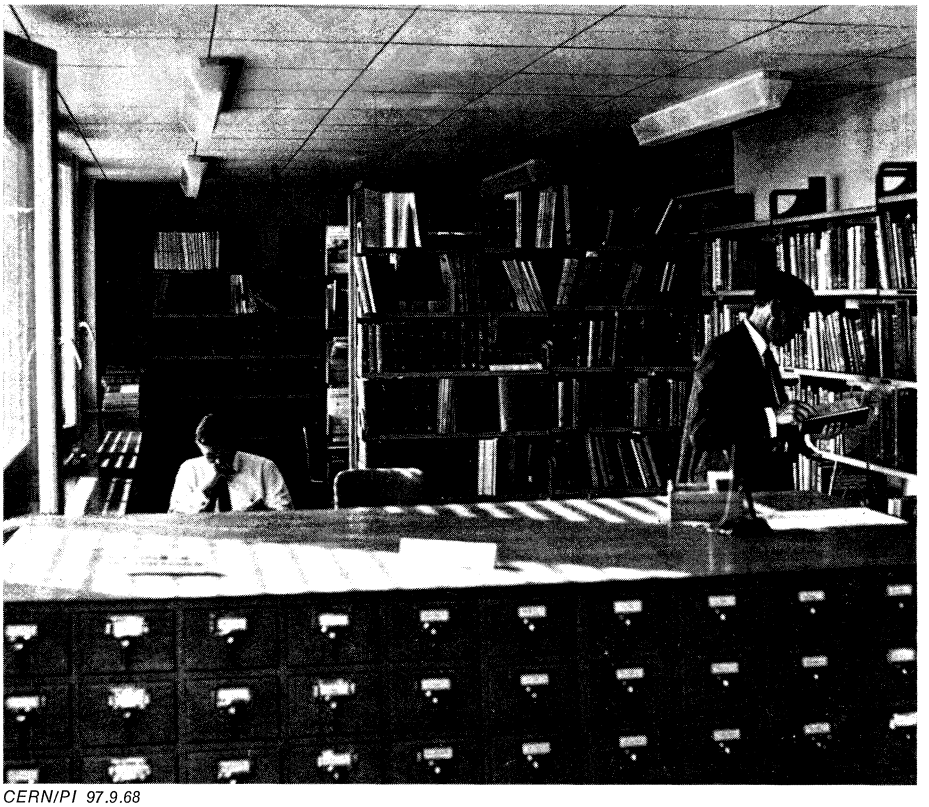

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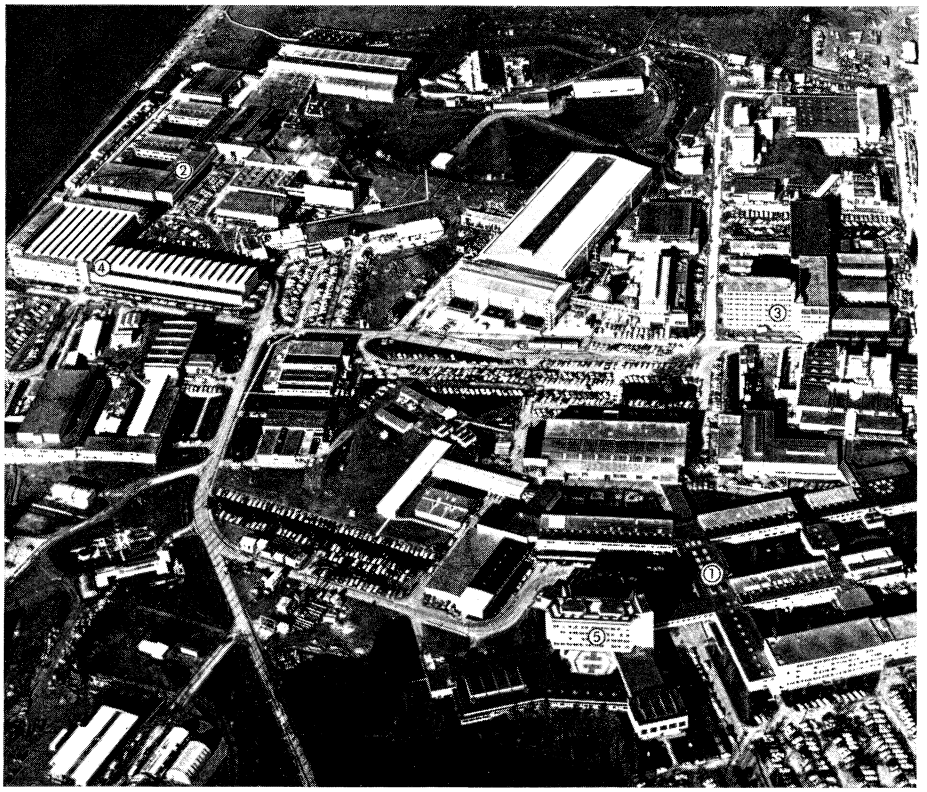

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An aerial view of the CERN site, picking out the location of

1 : The Central Library

2 : The PS Library

3 : The TC reference collection

4 : The NPA reference collection

5 : Salle Pauli

Preprints — issued weekly; lists papers and reports received and known, or assumed, to have been submitted for publication in scientific periodicals. A cumulative author index is issued every three months, with a cumulative supplement each week for the Library.

Forthcoming conferences — issued every two months; lists relevent conferences to be held within the following twelve months.

CERN scientific reports — issued every six months; lists all CERN 'Yellow' reports.

Reprints of CERN publications — issued every six months; lists reprints of papers by CERN authors published in scientific periodicals.

CERN publications — issued every few years; gives essentially a cumulation of the above two lists, with author index.

Whilst the last three lists are made generally available, the others are intended primarily for people at CERN and are hence of little interest outside.

Reading rooms

The major part of the library collection is housed in the Central Library, close to the complex containing the Main Auditorium, Council Chamber, Restaurant, Bank, and other amenities (see photograph on this page). Recently extended, and somewhat rearranged to separate more distinctly the loan section, the reference section and the bibliography section, the total area available is some 450 m², with 275 m of shelving for books, 525 m for periodicals and bibliographies, 256 drawers and 110 m of suspended files for reports and pamphlets.

A subsidiary collection, consisting mostly of duplicates of material in the Central Library, but also containing many other documents on accelerator design and use, is housed in the PS library, near the proton synchrotron. This has a surface area of 58 m².

Both reading rooms contain a full set of catalogue cards, so that the availability of any publication can be ascertained in either of them. A member of the Library staff is normally on duty in each room during the day to assist readers with any queries and to book out loans, but both rooms are open permanently and books and reports are thus available at any time of the day or night, week-ends included, for consultation or even for loan.

Since 1965, a small reference collection of important periodicals, conference proceedings and handbooks has been housed in the Track Chambers Division.

Of particular historical interest is the Salle Pauli, near the Council Chamber. This houses the private library of the late Professor Wolfgang Pauli, presented to CERN in 1960. It contains over 700 books, more than half of them on physics and mathematics, and a few periodicals, but the major part of the collection is made up of some 10 500 reprints of papers on physics and mathematics, particularly quantum theory, published during the period 1920-1959. This reading room is open every working day from 2 p.m. to 4 p.m. and the documents can be consulted at other times by special arrangement. A catalogue of the reprints is shortly to be published.

Looking to the future

In a growing organization like CERN, scientific information services must obviously expand and evolve to meet new needs as they arise (although it is a well-known rule of big institutions that increases in services do not keep in step with increases in direct activities!) The early establishment of the PS library and extension of the Central Library reading room were in line with this development.

Less noticeable, but undoubtedly more important in the long run, are the changes 'behind the scenes'.

An early example was the introduction of an automatic typewriter system, operating with punched cards, to prepare entries for the six-monthly lists of CERN reports and reprints. This facilitated publication of a cumulated *List of Scientific Publications, 1955-1964 (CERN Bibl. 7)* including an author index produced automatically by computer.

Preprints are another example. At first these were catalogued like any other document, but very soon their growing number and the over-riding need for speedy notification led to their simple announcement on the weekly preprint list — initially typed in one go, later prepared from separate entry slips typed as the preprints were received. Since 1966 the usefulness of each list has been enhanced by the simultaneous preparation of an updated author index, made possible by the additional use of punched cards. For some years also, a simplified loan procedure has been used for the circulation of preprints. The growth in demand shows up very clearly in Table I, which summarizes the stock and activities of the Library up to the end of 1967.

Early in 1967, the general need to plan ahead for the expansion of CERN on to the ISR site gave rise to the question whether more fundamental changes might not be needed in the Library, in place of the previous rather mild adaptation to circumstances.

The Library Committee accordingly set up a 'Working Party on Scientific Information', representative of both the Library

Part of the Library book collection in the Central Library.

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users and the Library staff, under the chairmanship of Dr. L. Kowarski, to study the future scope and techniques of the Scientific Information Service.

Library scope and location

A questionnaire on the use of the Library facilities was compiled and distributed to all actual and potential users in June 1967. Nearly 50 % of the forms were returned and only a few of these were from people who said they never used the Library at all. It could thus be confidently assumed that the replies represented the habits of a high proportion of users. The questionnaire was also of great help in showing definite patterns of activities which the Working Party could reliably take into account, along with other criteria, in formulating its recommendations.

Concerning the scope and location of the Library, these recommendations were, briefly, as follows:

— The existence of one Central Library for the whole of CERN should be preserved.

— The present Central Library reading room should be enlarged but adequate space should be foreseen for a new location in a few years' time, in the region of the new 'centre' planned for the enlarged site.

— The Library should continue to concentrate on CERN's main interests, with an improved coverage of some peripheral subjects and an enlarged Reference collection.

— The present PS Library should be preserved and a similar 'satellite library' might later be established on the far side of the French site. A limited number of new reference collections, like that in TC Division, could be envisaged.

— The Library catalogues should be made available in all new auxiliary libraries ('satellite' and 'reference'), and possibly elsewhere. Compilation and distribution of the bibliographical lists should be maintained and improved.

Development of the Library facilities is now proceeding along these lines, a recent decision being to establish an auxiliary reference collection serving physicists in the Nuclear Physics Apparatus Division.

Mechanization of cataloguing procedures

The present Library catalogue exists in the form of two identical collections of cards (one kept in the Central Library, the other in the PS Library), each composed of two distinct and separate files: the Alphabetic Catalogue and the Subject Catalogue.

Each catalogued document (book, report, reprint, etc.) appears in principle at least once in each of these two files. However, a CERN report, for example, will be listed first under CERN (subdivided by Division), then under the name of each author, and again under the number of the report; if the report is the Proceedings of a conference, a further entry is made under the town where the conference was held. Books are entered under author and title, and so on. The Subject Catalogue is based on the Universal Decimal Classification (UDC) and if the subject matter of a document needs two or more UDC numbers, a separate card is required in the catalogue under each one. Thus, instead of the minimum of two cards per document, the catalogue usually contains many more. There is one reprint of a paper on the CERN search for the intermediate boson which required 37 cards (authors' names) in the Alphabetic file and 1 in the Subject file; 76 cards altogether (Central and PS Libraries). This may be exceptional but it is not unique.

Although much of the work in the cataloguing procedure is routine copying and sorting, the necessity for strict accuracy means that it has to be checked, if not also carried out, by people with full library training. With the continued growth in the number of documents to be handled, a growing proportion of their time is wasted' in this way, and the prospect of a third card catalogue in some future satellite library (114 cards for the intermediate boson report!) is daunting indeed.

Copying and sorting, however, are ideal tasks for a computer. A logical answer to the problem was thus seen to be the use for the Library catalogue of CERN's administrative computer (IBM 360/30), and this solution was endorsed by the Library Committee Working Party.

Briefly, the idea is to put the basic bibliographical information for all documents into a standard computer-readable form. After some time, no further additions will be made to the card catalogues, which will be retained only to locate the older documents. Future catalogues will be in book form, enabling copies to be made available in as many places as desired; location of an entry in the catalogue will be by means of various indexes (subject, author, report number, etc.) automatically produced from the master entries stored in the computer memory and updated as required. Once the error-free main entries are stored in the computer, lists, indexes, etc, can be produced in various formats automatically, with little or no further checking.

The first use of this system will be for the joint cataloguing of reports and preprints in a single list, to be issued weekly like the present preprint list. Already, reports bearing the date of issue 1968 have

Library Statistics 1954 · 1967

1. Since 1967 only : previously counted under 'loans issued'.
2. Since July 1964 only : previously counted under 'loans issued'.
3. Since 1962 only : not counted before.

	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
BOOKS														
accessioned	533	1239	1181	1248	1544	1425	1178	1380	1087	1272	1506	1797	2220	2170
in stock		1772	2953	4201	5745	7170	8348	9728	10815	12087	13593	15390	17610	19780
PERIODICALS														
titles		166	195	257	296	334	356	348	369	395	448	479	494	518
additional sets		—	36	42	101	105	112	117	130	135	139	155	151	160
bound volumes		307	497	763	1203	1592	1937	2161	2431	2758	3118	3549	4314	4915
LOANS (issued)		1788	2157	3923	5292	6041	6531	10546	12754	14361	16618	14236	14218	11389
NEW BOOK CIRCULATION [1]														5119
PREPRINT REQUESTS[2]											8732	20740	29503	34916
INTERLIBRARY LOANS														
borrowed		502	421	461	446	725	550	491	561	663	781	559	673	812
lent[3]									161	151	186	220	194	202

been catalogued in the new way and announced by means of special supplements to the preprint list. The author index to the preprint list already includes reference to these reports, and report-number and subject indexes will follow in due course.

For subject indexing, the contents of each document will be described by means of a limited number of 'descriptors', taken from a controlled vocabulary. For any chosen descriptor, the subject index will show all the reports to which it was assigned, together with all the other descriptors given to each report. It is expected that this method will prove more suitable than the more rigid UDC framework, particularly for CERN's research interests. A slight initial disadvantage, is that all the descriptors will be in English, whereas the UDC number presently used for a subject can be found from either the English or the French term. It is planned to continue using the UDC for books.

At a later stage, books, reprints, etc. will also be catalogued using the new procedure, and some of the routine Library operations, such as ordering new books and controlling periodicals, may also be incorporated.

Beyond that, it is not safe to predict, but one of the most attractive and challenging aspects of a computerized cataloguing system is the opportunity that it offers for future development, not only within CERN itself but also in a wider field. All over the world, experiments are being carried out on the storage, sorting and rapid retrieval of information in various forms. The exchange between libraries of catalogue files on magnetic tape is already quite common. The printing of many scientific periodicals by computer could lead to the automatic provision of standardized catalogue entries on magnetic tape. Easier methods of 'communicating' with computers are being actively developed.

Compatibility of systems and needs, the proportion of relevant information in borrowed or bought computer tapes, speed, and cost, will be among the factors determining whether such advances could be usefully adopted by a comparatively small, narrow-based library like that at CERN.

One point should be made, however, particularly as this article has said almost nothing about the people who provide the Library service. However much computers may be employed to carry out the routine tasks, the Library will always have need of the special knowledge, interests, and abilities of human beings. The work of the Library staff may change, but Library users may rest assured that the aim is for better service, not robot librarians.